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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,206	12/30/2003	Kee-Hoon Choi	11038-138-999	1857

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EXAMINER

CHANDRAN, BIJU INDIRA

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/749,206

Applicant(s)

CHOI, KEE-HOON

Examiner

Biju Chandran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/8/2005, 12/30/20
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the term "baffle" does not appear to be accurate. Suggest replacing this term with art accepted terms like "lid", "enclosure", or the like. Appropriate correction is required.
2. The disclosure is objected to because of the following informalities: the sentence (paragraph 0014) "There is a plurality of holes 15 through the inner circuit substrate 15 underneath...." should be corrected to read, "There is a plurality of holes 15 through the inner circuit substrate 5 underneath....". Appropriate correction is required.
3. The disclosure is objected to because of the following informalities: the sentence (paragraph 0019) "...underneath the inner circuit substrate 5 via the through the holes 15....." should be corrected to read "...underneath the inner circuit substrate 5 via the through holes 15....". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

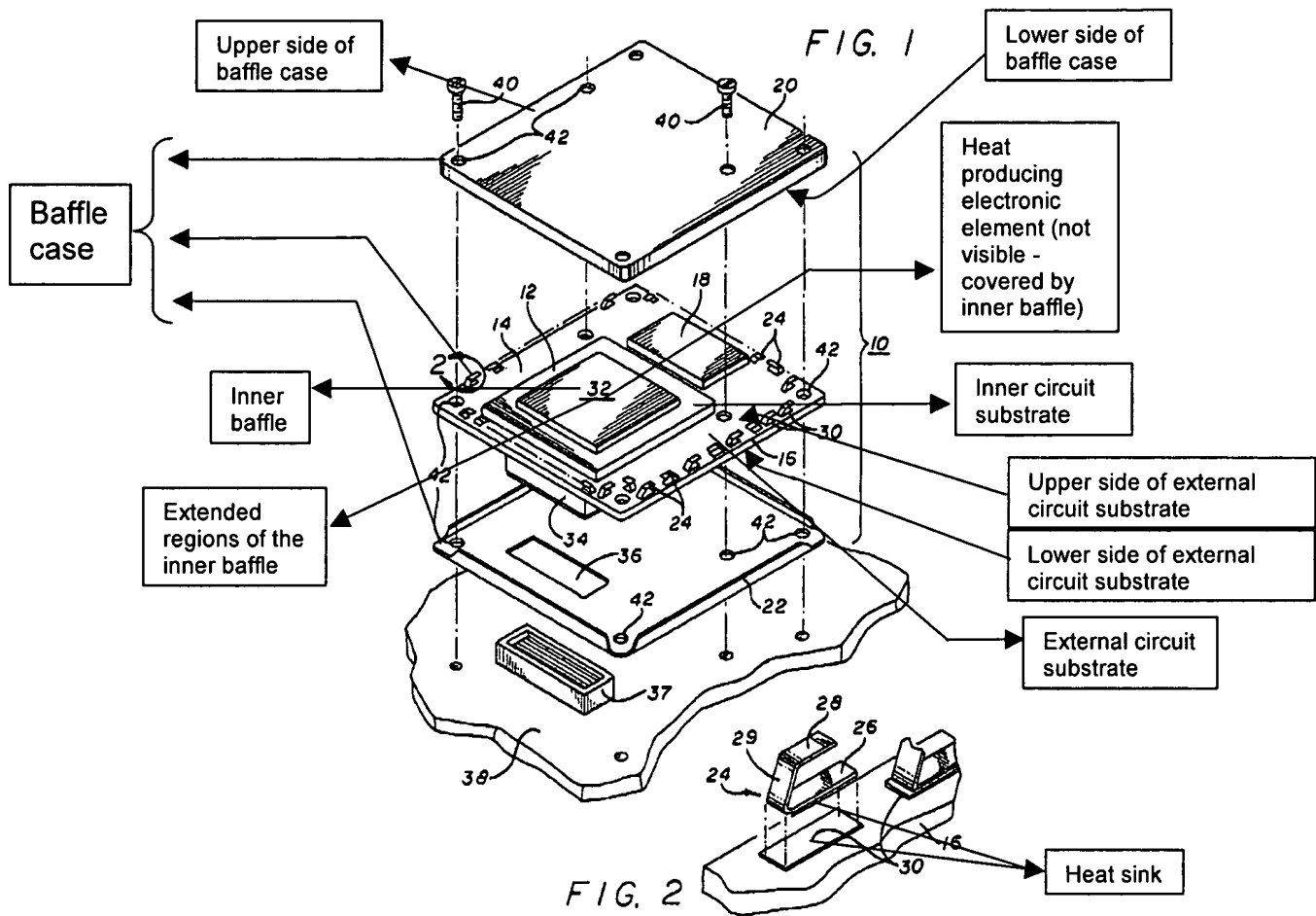
4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 6,239,973 B1), in view of Magnuson et al. (PGPub: US 2003/0209799), and further in view of Getkin et al. (PGPub US 2003/0171006).

Taylor et al. disclose a cooling structure for an electronic element, wherein the structure comprises: an extended portion formed on an inner baffle (32) and contacting an upper surface of a heat-producing electronic element (column 1, lines 19-20), wherein the inner baffle and the heat-producing electronic element are mounted on an inner circuit substrate (12); a baffle case (made up of 20, 24 and 22) surrounding the inner baffle, the extended portion, the heat-producing electronic element, and the inner circuit substrate, the baffle case having an upper side and a lower side (marked in the figure); and a plurality of baffle case holes through the lower side of the baffle case.

While Taylor et al. does not explicitly disclose the inner baffle and the inner baffle contacting the heat-producing electronic element, it would

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have been obvious for the microprocessor to be in contact with the inner baffle 32 in order to allow the heat from the processor to be removed from the system (column 1, lines 19-23).



Taylor et al. do not disclose a plurality of through holes formed on the inner circuit substrate underneath the heat-producing electronic element, or a radiating plate mounted on the upper side of the baffle.

Magnuson et al. disclose a semiconductor substrate with a plurality of through holes (Magnuson et al., paragraph 0012, figure 3, figure 4). At the time the invention was made, it would have been obvious to a person

of ordinary skill in the art to modify the inner substrate disclosed by Taylor et al. by incorporating a plurality of through holes as taught by Magnuson et al., under the heat producing electronic element to provide conductive interconnection between the front side and the back side of the substrate (Magnuson et al., paragraph 0003).

Getkin et al. disclose a heat producing electronic element attached to a substrate having a baffle with an extended portion contacting the heat-producing electronic element; and a radiating plate mounted on the upper side of the baffle (Getkin et al., figure 1B). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the radiating plate taught by Getkin et al. in the electronic element cooling structure taught by Taylor et al. to more effectively dissipate the heat generated by the electronic element and improve its reliability and performance (Getkin et al., paragraph 0025, paragraph 0004).

- With respect to claim 2, Taylor et al further discloses an external circuit substrate (16) with an upper side (14) and a lower side, wherein the upper side of the external circuit substrate further comprises a heat sink (30) contacting the lower side of the baffle case; and a plurality of external circuit substrate holes (42) through external circuit substrate to

correspondingly communicate with said baffle case holes of said baffle case.

- With respect to Claim 3, Taylor et al further discloses that the heat sink is a flat surface made of metal formed on the said external circuit substrate. With regard to the process of forming the heat sink, even though the claims are limited by and defined by the recited process, the determination of patentability of the product is based on the product itself, and does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made from a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).
- With respect to Claim 4, while it is unclear what metal is used for the heat sink in Taylor et al., it would have been obvious to one of ordinary skill in the art to use any known metal conventionally used for heat dissipation based upon routine experimentation. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re. Leshin*, 125 USPQ 416.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. in view of Magnuson et al. and Getkin et al. as applied to claim 1, and further in view of Macris (US 6,686,532 B1). Taylor et al. does not explicitly state that the electronic element is a power amplifying module of a code division multiple access modem. Macris discloses a cooling structure for power amplifying module of a modem (Macris, column 1, lines 20-22). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the power amplifying module taught by Macris in the electronic element cooling structure taught by Taylor et al. to utilize its cooling capability.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Biju Chandran whose telephone number is (571) 272-5953. The examiner can normally be reached on 8AM - 5PM. Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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